APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/420,334	10/18/1999	STEVEN D. LACY	10555/004001	2647

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EXAMINER
DELA TORRE, CRESCELLE N

ART UNIT	PAPER NUMBER
2174	1 1

DATE MAILED: 08/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

	Application No.	**Applicant(s)**
Office Action Summary	09/420,334	LACY ET AL.
	Examiner	**Art Unit**	
	Crescelle N dela Torre	2174	

-- The MAILING DATE of this communication appears on the cover sheet with the correspndence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 July 2002</u> .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-90</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-90</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The ~~proposed drawing correction~~ Formal Drawings filed on <u>18 October 1999</u> ~~is:~~ are a)☒ approved b)☐ disapproved by the ~~Examiner.~~ Draftsperson

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)   4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>11</u> .   6) ☐ Other: .

DETAILED ACTION

This action is responsive to communications: Preliminary Amendment, filed on

7/3/02, and prior art, filed on 3/20/00, 4/24/00, 6/25/01, 2/19/02, and 3/5/02.

This action is non-final.

Claims 1-90 are pending in this application. Claims 1, 19, 30, 36, 37, 55, 66, 72,

79, and 85 are independent claims. In the Preliminary Amendment, filed on 7/3/02,

claims 73-90 were added.

This application is a continuation-in-part of 09/174,856, filed on 10/19/98.

The present title of the invention is "Graphic Design of Combinatorial Material

Libraries".

Drawings

1.   The formal drawings were received on 10/18/99. These drawings are approved.

Information Disclosure Statement

2.   The information disclosure statement filed 3/20/00 fails to comply with 37 CFR

1.98(a)(2), which requires a legible copy of each U.S. and foreign patent; each

publication or that portion which caused it to be listed; and all other information or that

portion which caused it to be listed. It has been placed in the application file, but the

information referred to therein has not been considered.

No copies have been provided of References "AE"-"BK".

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

4.   Claims 37-72, 74, 75, 77, and 78 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

Claims 37 is unclear as to whether it claims a computer program per se or a

computer program product on a computer-readable medium. In particular, the

"program" on line 2 of the preamble, defines a set of instructions for execution on a

computer, i.e., a computer program per se. However, the body of the claim recites

various steps which define at least a set of instructions embodied on a computer-

readable medium to perform the recited functions. Claims 55, 66, and 72 are rejected

for similar reasons.

In addition, the following lack clear antecedent basis:

in claims 37, 55, 66, and 72, "the program" on line 2;

in claims 38-54, 55-65, 67-71, "the computer program" on line 1;

in claims 74, 75, "the method" on line 1; and

in claim 76, "the computer program product" on line 1.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.   Claims 37-72, 74, 75, 77, and 78 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. One reasonable interpretation of these claims is that they recite a computer program per se. A computer program per se does not define any structural and functional interrelationships that permit the computer program's functionality to be realized.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

9.   Claims 1-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Thalhammer-Reyero (U.S. patent 5,930,154) in view of Flavin et al (U.S. patent

6,044,212).

Flavin et al, hereinafter Flavin, teach the use of automated technology in

chemical process research and development, at column 1, lines 60-67. The invention of

Flavin allows a user to define sources and destinations, at column 2, lines 36-37, 45-46.

However, Flavin does not specifically teach defining a distribution pattern for assigning

a component to cells in the arrangement.

On the other hand, Thalhammer-Reyero teach the "modeling and simulation of

complex systems" in the chemical domain, at column 2, lines 39-41. For example,

Thalhammer-Reyero teaches receiving an input defining a first mapping, at column 4,

lines 60-62, defining a distribution pattern, at column 17, lines 16-19, using the mapping

to calculate a composition, at column 29, lines 12-30, and generating a data file defining

the design, at column 41, line 67.

Thus, it would have been obvious to one of ordinary skill in the art at the time of

the invention to include the modeling and simulation of Thalhammer-Reyero in the

invention of Flavin because it provides for modeling "different quantities and states at

which the entities can be found in particular locations at different points in time".

As to claim 2, Thalhammer-Reyero show displaying the representation of the library design, at figures 1-18, and column 9, line 63 to column 10, lines 9.

Thalhammer-Reyero also describe property sets [claim 3] at column 37, lines 7-12; graphical input [claim 4] at column 11, line 57; and selection of mapping types [claim 5], such as many-to-many [claim 6] or many-to-one [claim 7], at column 4, lines 60-62, and the abstract, which describes "linking each pool to one or several processes, and each process to one or several pools".

In addition, Thalhammer-Reyero teaches user-defined equations [claim 8] at column 5, lines 1-3, linear gradients [claim 9] at column 30, lines 30-31, and mappings including name, geometry, gradient type and parameters [claim 10] at figures 1-18.

Regarding claims 11, Thalhammer-Reyero teaches receiving an input defining a second mapping with a second distribution pattern, and using the mapping to calculate a composition, all at column 29, lines 12-30.

Furthermore, Thalhammer-Reyero describes a fixed amount of the second component [claim 12] at column 13, line 30, minimum, maximum amounts and a second gradient [claim 13] at column 17, lines 16-19.

As per claim 14, Thalhammer-Reyero teaches receiving an input defining a source, destination or mapping, at column 11, line 57; recalculating the composition, at column 5, lines 34-36; and generating a data file, at column 41, line 67.

Regarding claim 15, Thalhammer-Reyero teaches receiving input defining parameters, at column 41, lines 54-56, wherein the data file represents the parameters, at column 41, line 67.

Thalhammer-Reyero shows two [claim 16] or ten or more cells [claim 17] at

figures 1-18, while Flavin shows about 96 or more cells [claim 18] at figure 1.

As to claim 19, it is similar to claim 1. In addition, Thalhammer-Reyero teaches

data defining a set of equations, at column 5, lines 1-3, and using the equations to

calculate a composition, at column 5, lines 11-15.

Claim 20 is similar to claim 2.

Thalhammer-Reyero teaches that the component assigned to a cell is

determined by the location [claim 21] at column 2, lines 3-4, using a subset of equations

[claim 22] at column 2, lines 3-12.

Regarding claim 23, neither Thalhammer-Reyero nor Flavin specifically teach

generating an error indicator signal. However, informing the user of errors are known in

the art. Thus, it would have been obvious to one of ordinary skill in the art at the time of

the invention to include an error signal so as to inform the user of an incorrect operation.

As to claim 24, Thalhammer-Reyero teaches a ratio equation, at column 17, lines

16-19, a volume equation, at column 32, line 30, and a mass equation, at column 34,

lines 36-37.

Thalhammer-Reyero teaches a gradient equation [claim 25] at column 17, lines

16-19; equations are assigned according to location [claim 26] at column 2, lines 3-12;

and equations are solved [claims 27, 28] at column 5, lines 1-3.

Claim 29 is similar to a combination of claims 11 and 13.

As per claim 30, it is similar to claim 1. Thalhammer-Reyero also teaches defining plural mappings, at column 4, lines 60-62, and receiving an input defining one or more parameters, at column 41, lines 54-56.

Furthermore, Thalhammer-Reyero teaches that parameter values vary over time [claim 31] at column 2, lines 2-3, across two or more cells [claim 32] at column 2, lines 3-4, or both time and across cells [claim 33] at column 2, lines 2-4.

Claim 34 is similar to claim 9.

Regarding claim 35, Flavin teaches process parameters, such as temperature, time or pressure, at column 7, lines 17-18.

Claim 36 is similar to claim 1, wherein Thalhammer-Reyero creates a library design by defining a set of design elements, at figures 1-18, and generates a data file, at column 41, line 67, while Flavin teaches an automated material handling apparatus, at figure 1.

Claims 37-72 correspond respectively to claims 1-36.

Thalhammer-Reyero teaches source properties and their values [claim 73] at column 35, lines 61-65, including density and concentration [claim 74] at column 13, lines 49-50 and also teaches a class of chemicals [claim 75] at column 2, lines 40-41, column 10, lines 13-14.

Claims 76-78 correspond respectively to claims 73-75.

Claim 79 is a broader version of claim 30, while claims 80-82 correspond to 33-35 respectively.

Thalhammer-Reyero teaches a graphical representation of the library design

[claim 83] at figures 1-18, while Flavin teaches an automated process to prepare the

combinatorial library [claim 84] at figure 1.

Claims 85-90 correspond respectively to claims 79-84.

Conclusion

10.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Cathcart et al (U.S. patent 5,443,791) teach an automated molecular biology
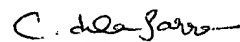
laboratory.

Carlson et al (U.S. patent 5,623,592) describe constructing an iconic sequence to

operate external devices.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Crescelle N dela Torre whose telephone number is

(703) 305-9782. The examiner can normally be reached on Monday -Thursday, from

8am-4pm, and on alternate Fridays, from 8am-3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kristine Kincaid can be reached on (703) 308-0640. The fax phone

numbers for the organization where this application or proceeding is assigned are (703)

746-7239 for official communications; (703) 746-7238 for After Final communications;

and (703) 746-7240 for non-official or draft communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

C. dela Torre

CRESCELLE N. DELA TORRE
PRIMARY EXAMINER